Health Care Delivery

Effects of Clinical Preceptorship on Career and Practice Site Choices

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To evaluate the effects of primary care preceptorships on the choices of career site and specialization, graduates of the University of Utah School of Medicine, 1972 through 1975, were questioned. Most practicing physicians who elected preceptorship training rated the experiences as valuable, but not important enough to be required. Physicians based their decisions for an urban practice on medical factors; rural areas were chosen more for personal reasons. In addition, data showed that the size of the respondents' hometowns was not associated with their choice in the size of their practice site nor their specialty. Respondents also reported that their medical school training was deficient in preparing them for the economic and psychosocial aspects of medical practice. Many Utah graduates are participating as clinical faculty or as preceptors for medical institutions and indicated that for their particular communities family physicians, obstetricians-gynecologists and pediatricians are still needed.

Since 1972 the University of Utah School of Medicine has participated in a federally funded primary care preceptorship program for medical students during their clinical years. Health Manpower Legislation (PL 92-157), passed in 1971, authorized support for programs that would give medical and osteopathic students preceptorship training with physicians in family practice, internal medicine or pediatrics. The major goals of the program are to remedy the geographic maldistribution of physicians and to reverse the trend toward subspecialization, thus helping to meet the need for primary care physicians in rural areas. By 1978 approximately $28 million had been awarded to 75 medical and osteopathic schools to support this program.[1]

The educational benefit of preceptorships has been well substantiated.[2,3] However, although it has been shown that physicians who participated in rural training programs were more likely to choose rural practice settings,[4] no evidence has been found to show that the preceptorship experience itself directly affects the choice of specialty.[2,5] It has been reported that participation in a clinical preceptorship is one of the characteristics associated with students selecting family practice as a specialty, as are being male and from a rural community.[1] Most of the studies regarding career choice and community site selection have been done on medical students' plans before actual completion of residency training and establishment of practice. The purpose of this study was to question practicing physicians to determine those factors that actually influenced their specialty and practice site selections.

Methods

The Primary Care Preceptorship Program at the University of Utah School of Medicine offers elective credit to students who during their clinical training (third and fourth years) spend a minimum of four continuous weeks with primary care physicians, that is, family physicians, pediatricians and general internists. Students are encouraged to take their families with them, and a few actually live with their preceptors. Both rural and urban sites are available. These clinical preceptorships in primary care provide students with an opportunity to perform those procedures in which they feel com-

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TABLE 1.—*A Summary of Available Data on the Respondent and Nonrespondent Populations*

	Respondents (N=133)		*Nonrespondents (N=128)*	
	Number	*Percent*	*Number*	*Percent*
Primary care specialists	53	39.8	49	38.3
Precepted	26	49.0	...	...
Primary care preceptorship	26	100.0	...	...
Other	...	...	...	...
Nonprimary care specialists	80	60.2	79	61.7
Precepted	58	72.5	...	...
Primary care preceptorship	35	60.0	...	...
Other	23	40.0	...	...
Men	129	97.0	121	95.0
Women	4	3.0	7	5.0
Married	118	88.7	...	...
Board certified	74	55.6	...	...
Urban practice	119	94.4	...	...
Rural practice	7	5.5	...	...
Urban hometown	85	69.1	...	...
Rural hometown	38	30.9	...	...
Preceptorships				
Yes	84	63.2	...	...
No	49	36.8	...	...

petent under the supervision of a practicing physician. Thus they both observe and acquire hands-on experience.

A questionnaire was developed and sent to all Utah graduates from between 1972 and 1975 for whom addresses were known. These years were chosen because most physicians graduating then would have completed their residencies and would now be in practice. All would have also had an opportunity to elect the clinical preceptorship option. Respondents were asked about their participation in the preceptorship program, the effect of the preceptorship experience on their choice of specialty and practice site, their opinions as to whether a preceptorship should be required, what, if anything, they felt was lacking in their medical preparation and what factors they felt influenced their selection of a community in which to practice.

Of the 272 questionnaires sent, 11 were returned as not deliverable by the post office. Of the 261 remaining questionnaires, 133 were returned, for a response rate of 51 percent. Responses were divided into a primary care group consisting of those physicians who are now practicing family medicine, pediatrics or general internal medicine and a nonprimary care group that included all the others. There was no significant difference in the response rates of primary care versus nonprimary care physicians (Table 1).

Statistical tests used for the data analyses were the x^2 test for independence with Yates' correction factor and the Fisher's exact test. Significance was determined at the .05 level.

Results

Sample Description

Of the 133 respondents, those actively practicing as primary care physicians represented 39.8 percent (53), with 60.2 percent (80) representing other specialties. From residency match information, 38.3 percent (49) of the nonrespondents pursued primary care specialties. Table 1 outlines the data available on both groups. Generally, those in the respondent group are men, married, board certified and in private practice, living in urban communities. Of the nonrespondents, 95 percent are men; additional information was unavailable.

Of the respondents, 63 percent (84) had participated in a preceptorship, most of whom (73 percent) took it for credit through the primary care preceptorship program. The other preceptorships mentioned were noncredited, individualized experiences taken on an ad hoc basis. (These experiences are usually arranged by each student and are so varied, and so few, that they were omitted from the analyses.)

Almost half of the respondents, 48 percent (64), are now serving as clinical faculty or as preceptors for medical schools, or both.

Specialty Choice

The data do not support the popular assumption that the size of a physician's hometown is a major influence on his or her choice of specialty. For our purposes, "rural" is a community of less than 10,000 population. Persons from rural areas chose almost equally the subspecialties of urology, radiology, pathology and psychiatry, as well as the primary care fields of family practice and internal medicine. There was no significant association between size of hometown and specialty selection ($x^2=30.37$, $P=>.05$).

Of the group who chose nonprimary care specialties, 58 (72.5 percent) also completed preceptorships; most (60 percent) also trained with primary care physicians. Only 49 percent (26) of the primary care group took a preceptorship; nevertheless, all (100 percent) were with primary care physicians. Most respondents (56, or 67 percent) who had taken a preceptorship felt that the training did influence their career goals and their eventual choice of a practice site. Only 22 (26 percent) of the entire precepting group felt no influence could be attributed to their preceptorship training. However, there was no consensus on whether a preceptorship should be required: 38 (45 percent) of those who did preceptorships, as opposed to 6 (12 percent) of those who did not, thought that a preceptorship should be a required experience. The most frequent reasons given for requiring it were to provide "real world" experience and to help choose a specialty. Many who felt a preceptorship should not be required did feel that the experience was valuable and should be strongly encouraged.

Rural Versus Urban Site Selection

It was interesting to contrast the physicians' reasons for choosing an urban as opposed to a rural community for their practices. "Urban" is defined as a community of larger than 10,000 population. Physicians cited medically related reasons for deciding on an urban

practice: they felt that larger communities had better medical facilities; they preferred to specialize, and, as urban practitioners, they would have access to subspecialty consultations. The broader entertainment and cultural opportunities in urban areas were mentioned as important, but not as frequently. On the other hand, physicians in smaller communities made their practice-site decisions more for personal-familial reasons: they liked the life in a small community and preferred to raise their families in one and the influence of the spouse was cited. Most respondents (73 percent) said if they had the choice they would choose the same practice site again.

There were only seven physicians currently practicing in rural communities. All of these physicians had taken a primary care preceptorship and were currently practicing in one of the primary care specialties. Most of the total precepting group did their training in urban communities (61 percent), yet 39 percent took their preceptorship in a rural community.

Much of the literature has indicated the strong influence the place of rearing has on the eventual choice of a practice site. Respondents' size of hometowns was compared with the size of the actual practice site. Most respondents (85) were from urban communities (69 percent). However, 38 (31 percent) indicated that they were raised in towns of less than 10,000 people. No relationship was found between urban or rural rearing and eventual practice site size (Fisher's exact test, $P = >.9$). Only two physicians who were reared in a rural site were currently practicing in a rural community, whereas 36 physicians whose hometowns were less than 10,000 population were practicing in urban locations. Five physicians raised in urban populations were currently practicing in a rural area.

Training Deficiencies

One of the most interesting responses coming from all specialties was the feeling that their training during medical school and residency had not prepared them for the business and psychosocial aspects of practicing medicine. For planning purposes, graduates were asked if additional physicians were needed in their geographic areas; family practitioners were most frequently mentioned, with obstetrician/gynecologists and pediatricians the second most needed. Additionally, it was found that respondents made career choices during their third year (33.1 percent) in medical school, their fourth year (20.3 percent) and as interns (20.3 percent). Other responses were as first-year students (4.5 percent), residents (8.3 percent) or at other times (12.8 percent). This is not surprising because to select a residency, most interview trips are made at the beginning of the fourth year; therefore, students must decide which programs to visit in order to plan their senior schedules.

Discussion

Our data agree with previous studies that show primary care physicians are more likely than other specialists to have had a primary care preceptorship experience during medical school. The difference, however, is not proportionately significant. Of the nonprimary care group 44 percent (35/80)—and of the primary care group 49 percent (26/53)—took a preceptorship with family physicians, pediatricians and internists. The data show that the preceptorship experience probably affects decisions on specialty and practice site selection regardless of career decisions: 67 percent of all respondents who had taken preceptorships said that the experience affected either their specialty choice or their decision about a practice location. Of the primary care physicians, 77 percent reported having been affected. This reinforcing mechanism may be very important when one considers that more than 50 percent of students recently entering the University of Utah School of Medicine expressed an interest in primary care.

Perhaps even more important is the finding that a greater percentage of students have decided by their fourth year on a specialty, especially in view of the fact that most primary care preceptorships take place during the fourth year. The influence of a preceptorship on career choices might be greater if primary care preceptorships were available earlier, that is, as part of the third year or during the preclinical years.

Nonprimary care specialists who participated in primary care preceptorships also responded favorably to its effects. The preceptorship was viewed as having helped them decide among a wide range of career choices.

About 44 percent of those who completed preceptorships felt that the experience was valuable enough that it should be a required part of medical student training, with the others highly recommending it. As far as alleviating the geographic maldistribution of physicians, a minor impact is being made. Of those seven respondents currently practicing in a rural area, all had taken primary care preceptorships and all were practicing primary care.

Conclusions

Preceptorship experiences that give students hands-on clinical opportunities appear to have a reinforcing effect on predisposed career and practice site preferences. The larger numbers of entering first-year students who are expressing an interest in family medicine might be further encouraged to choose a career in primary care if these preceptorships were available earlier in the training process. Although the major purpose of this study was to determine the effects of the primary care preceptorship experiences, additional data offered other indications concerning what influenced physicians' careers and eventual practice sites. Major conclusions are as follows:

- Respondents who had participated in a preceptorship felt the experience influenced both their specialty choices and their choices of practice site.
- Although only seven respondents were practicing

in a rural community, all were primary care physicians and all had taken a primary care preceptorship.

- There was no association between size of hometown and specialty selection.
- There was no association between the size of hometown and the size of practice site selected (urban versus rural).
- Physicians selecting smaller communities for their practices gave personal-familial reasons for selecting a small community, whereas medically related reasons were important in urban site selections.
- Deficiencies in respondents' training were cited as a lack of business and psychosocial preparation for the practice of medicine.
- There is still a perceived need for family physicians, obstetricians/gynecologists and pediatricians in both urban and rural populations.

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Medical Practice Questions

EDITOR'S NOTE: *From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.*

Intraarterial Carmustine (BCNU) Chemotherapy

QUESTION:

Is the use of intraarterial carmustine (BCNU) *chemotherapy for the treatment of malignant brain tumors an acceptable and established procedure falling within the scope of clinical practice, or should it be considered an investigational procedure to be carried out in a research facility with protocol?*

OPINION:

In the opinion of the Scientific Advisory Panels on Internal Medicine and on Neurosurgery, intraarterial carmustine (BCNU) chemotherapy for the treatment of malignant brain tumors should be considered investigational until its safety and efficacy have been demonstrated. Though this method of treatment appears to hold some promise, there is no evidence that the use of intraarterial carmustine (BCNU) chemotherapy is superior to conventional intravenous administration. Moreover, the known systemic toxic effects, both hematologic and nonhematologic, are significant hazards.

Controlled studies are required to determine if the added morbidity of arterial puncture and the increased risk of local drug toxicity (for example, retinal injury) are outweighed by a gain in therapeutic effect.

The procedure, therefore, remains the subject of investigation and should be used under appropriate research protocol in medical centers where rigorous scientific analysis and comparison with other modalities can be accomplished.